

Fabrication of Cable Tray Binding Frame for Vertical Shafts

Article Overview

Cable tray binding frames for vertical shafts are fabricated using steel or stainless steel components, designed to support vertical cable loads safely while complying with standards like DIN EN 61537 and BS EN 61537.

Material Selection and Components

Cable tray binding frames are typically made from steel or stainless steel, with optional galvanization or protective coatings to prevent corrosion in industrial environments . The system consists of:

- o Cable support lengths (trays, ladders, or mesh trays)
- o Support fittings (angles, brackets, clamps)
- o Mounting elements (anchors, bolts, and fasteners)
- o System accessories (spacers, binding straps, and connectors) These components are designed to secure cables in vertical shafts, prevent sagging, and withstand mechanical loads, including forces generated during short circuits .

Design Considerations

When fabricating a binding frame for vertical shafts:

- o Load capacity: Ensure the frame can support the weight of cables and any dynamic loads.
- o Spacing: Vertical supports should be spaced according to cable weight and tray type, typically following manufacturer guidelines.
- o Accessibility: Allow for cable entry and exit points at multiple levels for maintenance and future expansion .
- o Safety: Frames must not be used as walkways or for personnel support; they are strictly for cable support .

Fabrication Process

- o Measure the shaft dimensions and determine the required tray lengths and frame height.
- o Cut and assemble steel or stainless steel supports using welding or bolted connections, ensuring alignment and vertical stability.
- o Install mounting brackets or anchors at regular intervals along the shaft walls.
- o Attach cable trays to the frame using clamps or bolts, ensuring trays are level and securely fastened.
- o Add binding straps or cross braces to prevent lateral movement of trays and cables.
- o Inspect and test the assembly for mechanical stability and compliance with relevant standards .

Standards and Compliance

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- o DIN EN 61537: Specifies requirements for cable tray systems, including mechanical strength and installation practices .
- o BS EN 61537: Provides guidance for cable ladder and tray systems in the UK, including vertical installations .
- o CE marking and third-party certification: Ensure components meet European directives and are certified by recognized bodies such as UL, IMQ, or NEMA .

Maintenance and Safety

- o Regularly inspect vertical frames for corrosion, loose fasteners, or deformation.
- o Ensure cables are properly supported and not overstressed.
- o Maintain clear access for inspection and future cable additions . By following these guidelines, a robust, compliant, and safe cable tray binding frame can be fabricated for vertical shafts, ensuring long-term reliability and ease of maintenance.

Nearly every aspect of cable tray design and installation has been explored for the use of the reader. If a topic has not been covered

The shaft installation of cables with large conductor cross section presents some characteristics which are beyond the available

B. Cable tray systems are defined to include, but are not limited to straight sections of [ladder type] [trough type] [solid bottom type]

NEMA Standards Publication VE 2-2006 Cable Tray Installation Guidelines Published by: National Electrical Manufacturers

A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a

Cable shafts are circular or rectangular excavations constructed vertically or at an angle of

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Welcome to our step-by-step guide on installing cable trays! In this video, we'll explore the

Cable ladder and cable tray systems The following recommendations are intended to be a practical guide to ensure

Professional guide to cable tray and raceway installation: covers design, materials, step-by-step

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Cable tray system shall be used for laying of MV and LV power, control, instrumentation and special cables in the

ABB designs and manufactures cable tray systems, including perforated tray, cable ladder, channel tray and strut (metal framing),

Cable support systems are generally designed with at least 50 % reserve space available for each tray. Cable tray types, supports

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